

REMARKS

Applicant appreciates the courtesy extended by Examiner Nguyen and Primary Examiner Elve during the telephonic interview conducted on February 2, 2011. During the interview, the disclosures of JP 10286687 to Kinoshita et al. ("Kinoshita ") and U.S. Patent No. 4,059,876 to Ditto et al. ("Ditto"), and the 35 U.S.C. § 103(a) rejections based on Kinoshita and Ditto, were discussed. The following remarks reflect the substance of the interview.

Claims 1-12 are currently pending. No claim amendments are made in this Reply.

Applicant respectfully requests reconsideration and withdrawal of the following 35 U.S.C. § 103(a) rejections:

- The rejection of claims 1-3, and 6 based on Kinoshita in view of Ditto and DE 19909390 to Nowotny et al. ("Nowotny") (Office Action at 2);
- The rejection of claim 4 based on Kinoshita, Ditto, and Nowotny in view of U.S. Patent No. 6,838,638 to Satou et al. (*Id.* at 5);
- The rejection of claim 5 based on Kinoshita, Ditto, and Nowotny in view of JP 2891378 to Mihashi (*Id.* at 5);
- The rejection of claim 7 based on Kinoshita, Ditto, and Nowotny in view of U.S. Patent No. 6,717,106 to Nagano et al. (*Id.* at 6);
- The rejection of claim 8 based on Kinoshita, Ditto, and Nowotny in view of U.S. Patent Publication No. 2002/0003132 to Scalzotto (*Id.* at 7);
- The rejection of claims 9 and 10 based on Kinoshita, Ditto, and Nowotny in view of U.S. Patent No. 5,571,430 to Kawasaki et al. (*Id.* at 7);
- The rejection of claim 11 based on Kinoshita, Ditto, and Nowotny in view of U.S. Patent No. 5,837,960 to Lewis et al. (*Id.* at 8); and

- The rejection of claim 12 based on Kinoshita, Ditto, and Nowotny in view of JP 405311385 to Yomo et al. (*Id.* at 8)

Regarding independent claim 1, the Office Action acknowledged that Kinoshita does not disclose "a rotator rotating [a] laser-processing head around [a] central axial line of [a] valve seat portion such that the laser-processing head is inclined with respect to [a] generally vertical line," as recited in claim 1. Office Action at 2-3. The Office Action, however, relied on Ditto for its alleged disclosure of the above-quoted feature missing from Kinoshita. *Id.* at 3. The Office Action further asserted that "[i]t would have been obvious . . . to modify Kinoshita et al. [to include] a rotator rotating [a] laser-processing head around [a] central axial line of [a] valve seat portion such that [the] laser-processing head is inclined with respect to [a] generally vertical line, as taught by Ditto, for the purpose of having more mobility and control with respect to the workpiece[;] thereby uniform processing can be performed over the valve seat part." *Id.* As discussed during the interview, Applicant respectfully traverses for at least the following reasons.

If a proposed modification or combination of the prior art would change the principle of operation of the prior art device being modified, then the teachings of the references are insufficient to establish *prima facie* case of obviousness. M.P.E.P. § 2143.01(VI) (citing *In re Ratti*, 270 F.2d 810 (CCPA 1959)). Further, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. M.P.E.P. § 2141.02(VI). References cannot be combined when reference teaches away from their combination. M.P.E.P. § 2145 (X)(D)(2).

Kinoshita discloses that a laser beam irradiation equipment, purportedly corresponding to a laser processing head recited in amended claim 1, is immobilized. Kinoshita, paragraph [0027]. Rather than having any teaching of any rotation of the laser beam irradiation equipment, Kinoshita discloses a mounting base holding a cylinder head that rotates around a predetermined axis of rotation in order to precisely position a valve seat for laser clad processing. *Id.* paragraph [0013]. Even if Ditto or any other prior art reference were to hypothetically disclose a rotator rotating a laser-processing head as recited in claim 1, it would be improper to combine such a reference with Kinoshita because if Kinoshita's laser beam irradiation equipment were to be modified to rotate, it would change the principle of operation in Kinoshita such that the irradiation position and focal position of a laser beam would no longer be immobilized.

During the interview, however, the Examiner asserted that rotating a laser beam around a fixed valve seat would be "functionally equivalent" to rotating a valve seat around a fixed laser beam. Applicant respectfully disagrees.

In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents. See M.P.E.P. § 2144.06. In this case, neither Kinoshita nor Ditto has any teaching of the alleged functional equivalence of 1) rotating a laser beam around a fixed valve seat, and 2) rotating a valve seat around a fixed laser beam. Absent the use of impermissible hindsight reasoning based on a prior reading of the present application, one of ordinary skill in the art would not have had any legitimate reason to modify Kinoshita to remove its rotational driving means rotating a mounting

base and instead use a rotator rotating its laser beam irradiation equipment. See M.P.E.P. § 2141; see also *Rockwell Int'l Corp. v. U.S.*, 147 F.3d 1358, 1364 (Fed. Cir. 1998) ("In determining obviousness, the invention must be considered as a whole without the benefit of hindsight"); See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (Applicant's own teachings cannot be used as a blueprint to modify the prior art and reject the claims).

Moreover, Applicant has noted that in the conventional art where "a laser beam is fixed but a cylinder head rotates to carry out laser-clad processing . . . a great deal of equipment investment and facility-installation space have been required"; and "dissipated powder material becomes the cause of troubles at movable parts of a processing apparatus." As-filed specification, paragraphs [0004]-[0006]. In contrast, in the claimed apparatus, because a laser-processing head rotates around a central axial line of a valve seat while a cylinder head is immobilized, equipment for rotating the cylinder head as taught by Kinoshita might not be required, thereby possibly saving both cost and space. See *id.* paragraphs [0027-0028]. Such advantages were not recognized or achieved by either Kinoshita or Ditto.

For at least these reasons, it would be improper to combine Ditto with Kinoshita in the manner proposed by the Office Action to arrive at the claimed invention, and no reasonable expectation of success would have been present.

Furthermore, Ditto neither discloses nor suggests a rotator rotating a laser-processing head, as recited in claim 1. For instance, the embodiment shown in Fig. 1 of Ditto (as relied on by the Office Action) discloses a motor 28 and belt 30 rotating a hollow cylindrical column 26. Further, a mirror 36 mounted within the cylinder 26 on the

axis thereof directs a laser beam laterally through a port 38 to a second mirror 40 mounted on a support arm 42 extending from the cylinder 26 and rotating therewith. Ditto, col. 1, line 62 to col. 2, line 4. In this arrangement shown in Fig. 1, Ditto neither discloses nor suggests any structural element corresponding to a laser-processing head "irradiating a laser beam onto a process part of [a] valve seat portion, while discharging a powdery material to the process part," and accordingly, neither discloses nor suggests any structural element corresponding to a rotator rotating such a laser-processing head. Ditto's cylinder 26 and mirrors 40, 42 merely direct a laser beam onto a valve seat 18, without having any discharge of a powdery material to the valve seat 18. Accordingly, Ditto's embodiment shown in Fig. 1 does not meet the limitations pertaining to the claimed "rotator rotating [a] laser-processing head [irradiating a laser beam onto a process part of a valve seat portion, while discharging a powdery material to the process part]," as claimed. See M.P.E.P. § 2141.02 (Ascertaining the differences between the prior art and the claims at issue requires interpreting the claim language, and considering both the invention and the prior art references as a whole); M.P.E.P. § 2116.01 (Interpreting the claimed invention as a whole requires consideration of all claim limitations). Further, none of the other cited references overcomes the deficiencies from the proposed combination of Kinoshita and Ditto.

Accordingly, independent claim 1 should be allowable over the cited references. Claims 2-5 depend from claim 1, and incorporate all of the features of claim 1. Claims 2-5 also should be allowable for reasons at least the same as those set forth for claim 1.

Independent method claim 6 recites features that are substantially similar to the above-discussed features of claim 1. Claim 6, and its dependent claims 7-12, should be allowable for reasons at least similar to those explained above for claim 1.

In light of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application, withdrawal of all of the pending rejections, and timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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